

FORM PTO-1390  
(REV. 9-2001)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

201-070

U.S. APPLICATION NO. (If known, see 37 CFR 1.5

10/n 30167

INTERNATIONAL APPLICATION NO.

PCT/EP00/05073

INTERNATIONAL FILING DATE

3 June 2000

PRIORITY DATE CLAIMED

31 July 1999

TITLE OF INVENTION  
MESSAGE NETWORKAPPLICANT(S) FOR DO/EO/US  
HERTER, Eberhard

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. ☐ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☐ is attached hereto (required only if not communicated by the International Bureau).
  - b. ☒ has been communicated by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
  - a. ☐ is attached hereto.
  - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
  - b. ☐ have been communicated by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

## Items 11 to 20 below concern document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
14. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
18. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. ☒ Other items or information:  
Published International Application No. WO 01/10149 A1 (in German)  
International Examination Report (in German)

U.S. APPLICATION NO. (if known, see 37 CFR 1.40) <b>10/030167</b>		INTERNATIONAL APPLICATION NO. PCT/EP00/05073		ATTORNEY'S DOCKET NUMBER 201-070	
21. <input checked="" type="checkbox"/> The following fees are submitted: <b>BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)):</b> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO. .... <b>\$1040.00</b>  International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO ..... <b>\$890.00</b>  International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... <b>\$740.00</b>  International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... <b>\$710.00</b>  International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) ..... <b>\$100.00</b>  <b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b>				<b>CALCULATIONS PTO USE ONLY</b>	
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input checked="" type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				\$ 890	
				\$ 130	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	\$	
Total claims	6 - 20 =		x \$18.00	\$	
Independent claims	1 - 3 =		x \$84.00	\$	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$280.00	\$	
<b>TOTAL OF ABOVE CALCULATIONS =</b>				\$ 1020	
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.				\$	
<b>SUBTOTAL =</b>				\$ 1020	
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$	
<b>TOTAL NATIONAL FEE =</b>				\$ 1020	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +				\$	
<b>TOTAL FEES ENCLOSED =</b>				\$ 1020	
				Amount to be refunded:	\$
				charged:	\$

- a. ☒ A check in the amount of \$ 1020 to cover the above fees is enclosed. (Check No. 16694)
- b. ☐ Please charge my Deposit Account No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ to cover the above fees.  
A duplicate copy of this sheet is enclosed.
- c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any  
overpayment to Deposit Account No. 10-1213. A duplicate copy of this sheet is enclosed.
- d. ☐ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card  
information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

**NOTE:** Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137 (a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

Date: 31 January 2002

Felix J. D'Ambrosio  
JONES, TULLAR & COOPER, P.C.  
P.O. Box 2266 Eads Station  
Arlington, VA 22202

SIGNATURE

Felix J. D'Ambrosio

NAME

25,721

REGISTRATION NUMBER

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of )  
Eberhard HERTER )  
Appln. No. : TBA )  
Filed : January 31, 2002 )  
For : MESSAGE NETWORK )

**PRELIMINARY AMENDMENT**

Honorable Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Sir:

Prior to an examination on the merits, please amend this application as follows:

**AMENDMENTS**

**IN THE SPECIFICATION:**

Please amend page 1 as follows:

--Message Network

The present invention relates to a communication network for the design and operation of individual communication connections.

**Background of the Invention**

Such communication networks are presently operating in a variety of designs and for various applications.

205THO "STREET"

On a world-wide basis, the most common type of such a communication network is the classical telephone network which, in its modern configuration, serves not only the original purpose of voice transmission, but is also used for other forms of communication, such as data transmission, etc.

Substantially, such communication networks consist of two operating sectors. One operating sector comprises the centralized line side, which is assigned to the participating subscribers for no longer than the duration of a communication connection and only within the framework of such an individual communication connection. This applies to the lines which are necessary to establish a connection and to operate an individual connection. The other sector is assigned individually to each subscriber of the communication network, i.e. the so-called subscriber side.

More than half of the cost involved in the installation and operation of such a communication network applies to the above named subscriber--

Please amend page 2 as follows:

--side, which substantially consists of the lines leading to the subscriber and the lines installed at the subscriber end, known as the network termination. Also to be added are the lines and connectors (jacks) installed in the building at the subscriber end. A third sector to be added to those two sectors consists of the terminal equipment. Today, subscribers decide to a large extent what technically suitable types of terminal equipment they wish to connect to their jacks in that sector.

In such communication networks known in prior art, it is regarded as very unsatisfactory that - in spite of multiple functions such as with ISDN technology - the above named subscriber side is in use only for short periods of time, while it remains idle most of the time (about 90%).

### Summary of the Invention

It is therefore the object of the present invention to provide a communication network for establishing and operating individual communication connections in which the central office is connected by firmly dedicated local lines to a network termination circuit to which each subscriber can be connected, thus allowing a flexible and therefore better utilization of the subscriber side.

This object is achieved according to the present invention in that the network termination circuit is provided with a radio interface and provided with a local identity. Such a solution has the advantage that the network termination circuit is no longer individualized and kept busy by the one subscriber connected to it.

### Detailed Description

According to an embodiment of the present invention, it is provided that the network termination circuit is assigned to a subscriber terminal for no longer than the duration of an individual communication connection.--

Please amend page 3 as follows:

--By means of this measure, the network termination circuit is individualized only for a relatively short period of time by a subscriber, whose identity is provided in the terminal (SIM card) in a

manner actually known in the prior art from modern mobile communication.

In accordance with another embodiment of the present invention, each subscriber-specific terminal is provided with a transmitter/receiver that is compatible with a radio interface. By this means, it is possible, for example, to achieve a higher degree of flexibility in comparison with cordless telephones known in the prior art. With the above-described embodiment, it is provided according to a further development that each subscriber-specific terminal can be connected to any network termination circuit that becomes available.

According to a further development of the present invention, it is possible on the one hand to increase flexibility in using a line and on the other hand to give the subscriber the greatest possible mobility, since it is possible within the framework of an individual communication connection to switch a subscriber-specific terminal from one network termination circuit to another. This so-called "hand-over" technology, which is actually known from modern mobile communication systems such as GSM, can also be used to advantage within the context of the present invention.

For existing conventional communication networks, which are equipped with subscriber-specific network termination circuits, one embodiment of the present invention provides that these network termination circuits are additionally equipped with a radio interface and that by means of suitable changeover devices they can be used in one of the two operating modes ("subscriber-specific" or "only line-specific"). "Subscriber-specific" is--

Please amend page 4 as follows:

--defined here as the conventional identity assigned jointly to the network termination circuit and the subscriber.

In the above explanations, reference was made repeatedly to modern mobile radio systems such as GSM, etc. Instead of cables on the subscriber side, which are customary in conventional communication networks, especially telephone networks, such mobile radio-systems have so-called radio cells with base stations (BS) and base station controllers (BSC) which are connected to the mobile services switching centers (MSC) via special lines or radio relay links. The cost of these mobile radio systems is considerable, since there must be a large number of the above named radio cells - depending on the limited radio range of the terminals used.

The communication network according to the present invention has advantages in comparison with those systems. First of all, the cost involved is limited to the radio link between the terminal and a network termination circuit. Since in existing networks, the cost of network termination circuits is no higher than in two adjacent buildings equipped with telephone connections, it is possible to make do with a lower transmission output, especially for the terminals, which on the one hand considerably reduces the cost of the power supply and on the other hand greatly reduces EMV, a known danger from high-frequency radiation that can cause brain damage. Secondly, solutions which have proven successful in known mobile radio systems, in connection with the design and operation of the radio interface, can be adopted in principle. Already mentioned was the identification of the subscribers or their terminals by means of a SIM card, sometimes in

connection with a PIN code, as well as the so-called "hand- --

Please amend page 5 as follows:

--over", i.e. the transfer of an existing connection from one network termination circuit to another (adjacent) network termination circuit.

When the communication network according to the present invention is introduced to an existing conventional network, it is desirable that the existing operation can be continued. For that purpose, the network termination circuits are provided with an additional radio interface. To allow a choice between an existing "fixed" connection ("individual subscriber connection") and a new "line-specific" subscriber connection, a changeover device must be provided, which may operate, for example, in such a way that the "fixed" subscriber connection is given priority, and in case of a radio-operated actuation, the latter is changed over from the affected network termination circuit to an adjacent network termination circuit in the manner of the already mentioned prior-art "handover".

Only in areas with sparse or no population, where no telephone system exists, lines would have to be laid with a network termination circuits and radio interfaces at appropriate intervals--

IN THE CLAIMS:

Please cancel claim 1 without prejudice or disclaimer of the subject matter thereof.

Please add the following new claim:

7. A communication network for the establishment and operation of individual communication connections including a network termination circuit to which each subscriber can



be connected, said network termination circuit being provided with a radio interface and given a local identity, and being connected by firmly assigned local lines to a central office.

Please amend claims 2-6 as follows:

2. (Amended) The communication network according to claim 7, wherein said network termination circuit is assigned to a subscriber-specific terminal for no longer than the duration of an individual communication connection.

3. (Amended) The communication network according to claim 2, wherein every subscriber-specific terminal is provided with a transmitter/receiver which is compatible with a radio interface.

4. (Amended) The communication network according to claim 3, wherein every subscriber-specific terminal can be connected to any network termination circuit that happens to be available.

5. (Amended) The communication network according to claim 4, wherein within the framework of an individual communication connection a subscriber-specific terminal can be switched from one network termination circuit to another.

6. (Amended) The communication network according to claim 7, wherein in conventional communication networks with subscriber-specific network termination circuits, these network termination circuits can also be provided with an additional radio interface, and that suitable changeover devices are provided which allow alternative operation in either the "subscriber-specific" mode or in the "only line-specific" mode.

IN THE ABSTRACT:

Please amend the Abstract as follows:

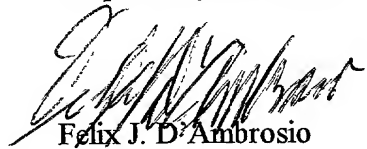
--Abstract

The present invention deals with a communication network for the establishment and operation of individual communication connections. The connection between the central office and the individual subscriber is established on the subscriber side, which essentially consists of lines leading to the subscriber and the corresponding network termination. The network termination and the subscribers have a common identity. According to the present invention, the network termination circuit is provided with a radio interface. The network termination circuit has only a local identity. The subscriber identity is transferred to the terminal.--

REMARKS

The above amendments are being submitted to place this application in better condition for examination.

Respectfully submitted,



Felix J. D'Ambrosio  
Reg. No. 25,721

January 31, 2002

JONES, TULLAR & COOPER, P.C.  
P.O. Box 2266 Eads Station  
Arlington, VA 22202  
(703) 415-1500

MARKED-UP COPY OF PAGE 1 OF SPECIFICATION

--Message Network

[Description]

The present invention relates to a communication network for the design and operation of individual communication connections.

Background of the Invention

Such communication networks are presently operating in a variety of designs and for various applications.

On a world-wide basis, the most common type of such a communication network is the classical telephone network which, in its modern configuration, serves not only the original purpose of voice transmission, but is also used for other forms of communication, such as data transmission, etc.

Substantially, such communication networks consist of two operating sectors. One operating sector comprises the centralized line side, which is assigned to the participating subscribers for no longer than the duration of a communication connection and only within the framework of such an individual communication connection. This applies to the lines which are necessary to establish a connection and to operate an individual connection. The other sector is assigned individually to each subscriber of the communication network, i.e. the so-called subscriber side.

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More than half of the cost involved in the installation and operation of such a communication network applies to the above named subscriber--

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## MARKED-UP COPY OF PAGE 2 OF SPECIFICATION

--side, which substantially consists of the lines leading to the subscriber and the lines installed at the subscriber end, known as the network termination. Also to be added are the lines and connectors (jacks) installed in the building at the subscriber end. A third sector to be added to those two sectors consists of the terminal equipment. Today, subscribers decide to a large extent what technically suitable types of terminal equipment they wish to connect to their jacks in that sector.

In such communication networks known in prior art, it is regarded as very unsatisfactory that - in spite of multiple functions such as with ISDN technology - the above named subscriber side is in use only for short periods of time, while it remains idle most of the time (about 90%).

### Summary of the Invention

It is therefore the object of the present invention to [create] provide a communication network for establishing and operating individual communication connections in which the central office is connected by firmly dedicated local lines to a network termination circuit to which each subscriber can be connected, thus allowing a flexible and therefore better utilization of the subscriber side.

This object is achieved according to the present invention in that the network termination circuit is provided with a radio interface and provided with a local identity. Such a solution has the advantage that the network termination circuit is no longer individualized and kept busy by the

one subscriber connected to it.

### Detailed Description

According to an embodiment of the present invention, it is provided that the network termination circuit is assigned to a subscriber terminal for no longer than the duration of an individual communication connection.--

**MARKED-UP COPY OF PAGE 3 OF SPECIFICATION**

--By means of this measure, the network termination circuit is individualized only for a relatively short period of time by a subscriber, whose identity is provided in the terminal (SIM card) in a manner actually known in the prior art from modern mobile communication.

In accordance with another embodiment of the present invention, each subscriber-specific terminal is provided with a transmitter/receiver that is compatible with a radio interface. By this means, it is possible, for example, to achieve a higher degree of flexibility in comparison with cordless telephones known in the prior art. With the above-described embodiment, it is provided according to a further development that each subscriber-specific terminal can be connected to any network termination circuit that becomes available.

According to a further development of the present invention, it is possible on the one hand to increase [the] flexibility in using a line and on the other hand to give the subscriber the greatest possible mobility, since it is possible within the framework of an individual communication connection to switch a subscriber-specific terminal from one network termination circuit to another. This so-called "hand-over" technology, which is actually known from modern mobile communication systems such as GSM, can also be used to advantage within the context of the present invention.

For existing conventional communication networks, which are equipped with subscriber-specific

network termination circuits, one embodiment of the present invention provides that these network termination circuits are additionally equipped with a radio interface and that by means of suitable changeover devices they can be used in one of the two operating modes ("subscriber-specific" or "only line-specific"). "Subscriber-specific" is--

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MARKED-UP COPY OF PAGE 4 OF SPECIFICATION

--defined here as the conventional identity assigned jointly to the network termination circuit and the subscriber.

In the above explanations, reference was made repeatedly to modern mobile radio systems such as GSM, etc. Instead of cables on the subscriber side, which are customary in conventional communication networks, especially telephone networks, such mobile radio-systems have so-called radio cells with base stations (BS) and base station controllers (BSC) which are connected to the mobile services switching [centres] centers (MSC) via special lines or radio relay links. The cost of these mobile radio systems is considerable, since there must be a large number of the above named radio cells - depending on the limited radio range of the terminals used.

The communication network according to the present invention has advantages in comparison with those systems. First of all, the cost involved is limited to the radio link between the terminal and a network termination circuit. Since in existing networks, the cost of network termination circuits is no higher than in two adjacent buildings equipped with telephone connections, it is possible to make do with a lower transmission output, especially for the terminals, which on the one hand considerably reduces the cost of the power supply and on the other hand greatly reduces EMV, a known danger from high-frequency radiation that can cause brain damage. Secondly, solutions which have proven successful in known mobile radio systems, in connection with the design and operation of the radio interface, can be adopted in principle. Already mentioned was

the identification of the subscribers or their terminals by means of a SIM card, sometimes in connection with a PIN code, as well as the so-called "hand- --

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**MARKED-UP COPY OF PAGE 5 OF SPECIFICATION**

--over", i.e. the transfer of an existing connection from one network termination circuit to another (adjacent) network termination circuit.

When the communication network according to the present invention is introduced to an existing conventional network, it is desirable that the existing operation can be continued. For that purpose, the network termination circuits are provided with an additional radio interface. To allow a choice between an existing "fixed" connection ("individual subscriber connection") and a new "line-specific" subscriber connection, a changeover device must be provided, which may operate, for example, in such a way that the "fixed" subscriber connection is given priority, and in case of a radio-operated actuation, the latter is changed over from the affected network termination circuit to an adjacent network termination circuit in the manner of the already mentioned prior-art "handover".

Only in areas with sparse or no population, where no telephone system exists, lines would have to be laid with a network termination circuits and radio interfaces at appropriate intervals--

**MARKED-UP COPY OF AMENDED CLAIMS 2-6**

2. (Amended) The communication [Communication] network according to claim [1] 7, [characterized in that] wherein said network termination circuit is assigned to a subscriber-specific terminal for no longer than the duration of an individual communication connection.

3. (Amended) The communication [Communication] network according to claim [1] 2, [characterized in that] wherein every subscriber-specific terminal is provided with a transmitter/receiver which is compatible with a radio interface.

4. (Amended) The communication [Communication] network according to claim 3, [characterized in that] wherein every subscriber-specific terminal can be connected to any network termination circuit that happens to be available.

5. (Amended) The communication [Communication] network according to claim 4, [characterized in that it is possible] wherein within the framework of an individual communication connection [to switch] a subscriber-specific terminal can be switched from one network termination circuit to another.

6. (Amended) The communication [Communication] network according to claim [1] 7, [characterized in that] wherein in conventional communication networks with subscriber-specific network termination circuits, these network termination circuits can also be provided with an additional radio interface, and that suitable changeover devices are provided which allow alternative operation in either the "subscriber-specific" mode or in the "only line-specific" mode.

**MARKED-UP COPY OF AMENDED ABSTRACT**

--Abstract

The present invention [describes] deals with a communication network for the establishment and operation of individual communication connections. The connection between the central office and the individual subscriber is established on the subscriber side, which essentially consists of lines leading to the subscriber and the corresponding network termination. The network termination and the subscribers have a common identity. According to the present invention, the network termination circuit is provided with a radio interface. The network termination circuit has only a local identity. The subscriber identity is transferred to the terminal.--

10/030167  
531 Rec'd P.02/09 31 JAN 2002

## Message Network

**Description**

The invention relates to a communication network for the design and operation of individual communication connections.

- 5     Such communication networks are presently operating in a variety of designs and for various applications.

On a world-wide basis, the most common type of such a communication network is the classical telephone network which, in its modern configuration, serves not only the original purpose of voice transmission, but is also used for other forms of communication, such as data transmission, etc.

Substantially, such communication networks consist of two operating sectors.

One operating sector comprises the centralized line side, which is assigned to the participating subscribers for no longer than the duration of a communication connection and only within the framework of such an individual communication connection. This applies to the lines which are necessary to establish a connection and to operate an individual connection.

- 20     The other sector is assigned individually to each subscriber of the communication network, i.e. the so-called subscriber side.

More than half of the cost involved in the installation and operation of such a communication network applies to the above named subscriber

side, which substantially consists of the lines leading to the subscriber and the lines installed at the subscriber end, known as the network termination. Also to be added are the lines and connectors (jacks) installed in the building at the subscriber end. A third sector to be added to those two sectors consists of the terminal equipment. Today, subscribers decide to a large extent what technically suitable types of terminal equipment they wish to connect to their jacks in that sector.

In such communication networks known in prior art, it is regarded as very unsatisfactory that — in spite of multiple functions such as with ISDN technology — the above named subscriber side is in use only for short periods of time, while it remains idle most of the time (about 90%).

It is therefore the object of the present invention to create a communication network for establishing and operating individual communication connections in which the central office is connected by firmly dedicated local lines to a network termination circuit to which each subscriber can be connected, thus allowing a flexible and therefore better utilization of the subscriber side.

This object is achieved according to the invention in that the network termination circuit is provided with a radio interface and provided with a local identity.

Such a solution has the advantage that the network termination circuit is no longer individualized and kept busy by the one subscriber connected to it.

According to an embodiment of the invention, it is provided that the network termination circuit is assigned to a subscriber terminal for no longer than the duration of an individual communication connection.

By means of this measure, the network termination circuit is individualized only for a relatively short period of time by a subscriber, whose identity is provided in the terminal (SIM card) in a manner actually known in prior art from modern mobile communication.

- 5 In accordance with another embodiment of the invention, each subscriber-specific terminal is provided with a transmitter/receiver that is compatible with a radio interface.

By this means, it is possible, for example, to achieve a higher degree of flexibility in comparison with cordless telephones known in prior art.

- 10 With this above-described embodiment, it is provided according to a further development that each subscriber-specific terminal can be connected to any network termination circuit that becomes available.

- 15 According to a further development of the invention, it is possible on the one hand to increase the flexibility in using a line and on the other hand to give the subscriber the greatest possible mobility, since it is possible within the framework of an individual communication connection to switch a subscriber-specific terminal from one network termination circuit to another. This so-called "hand-over" technology, which is actually known from modern mobile communication systems such as GSM, can
- 20 also be used to advantage within the context of the present invention.

- For existing conventional communication networks, which are equipped with subscriber-specific network termination circuits, one embodiment of the invention provides that these network termination circuits are additionally equipped with a radio interface and that by means of suitable
- 25 changeover devices they can be used in one of the two operating modes ("subscriber-specific" or "only line-specific"). "Subscriber-specific" is



defined here as the conventional identity assigned jointly to the network termination circuit and the subscriber.

In the above explanations, reference was made repeatedly to modern mobile radio systems such as GSM, etc. Instead of cables on the subscriber side, which are customary in conventional communication networks, especially telephone networks, such mobile radio systems have so-called radio cells with base stations (BS) and base station controllers (BSC) which are connected to the mobile services switching centres (MSC) via special lines or radio relay links. The cost of these mobile radio systems is considerable, since there must be a large number of the above named radio cells — depending on the limited radio range of the terminals used.

The communication network according to the invention has advantages in comparison with those systems.

First of all, the cost involved is limited to the radio link between the terminal and a network termination circuit. Since in existing networks, the cost of network termination circuits is no higher than in two adjacent buildings equipped with telephone connections, it is possible to make do with a lower transmission output, especially for the terminals, which on the one hand considerably reduces the cost of the power supply and on the other hand greatly reduces EMV, a known danger from high-frequency radiation that can cause brain damage.

Secondly, solutions which have proven successful in known mobile radio systems, in connection with the design and operation of the radio interface, can be adopted in principle. Already mentioned was the identification of the subscribers or their terminals by means of a SIM card, sometimes in connection with a PIN code, as well as the so-called "hand-

over", i.e. the transfer of an existing connection from one network termination circuit to another (adjacent) network termination circuit.

When the communication network according to the invention is introduced to an existing conventional network, it is desirable that the existing operation can be continued. For that purpose, the network termination circuits are provided with an additional radio interface. To allow a choice between an existing "fixed" connection ("individual subscriber connection") and a new "line-specific" subscriber connection, a changeover device must be provided, which may operate, for example, in such a way that the "fixed" subscriber connection is given priority, and in case of a radio-operated actuation, the latter is changed over from the affected network termination circuit to an adjacent network termination circuit in the manner of the already mentioned prior-art "handover".

Only in areas with sparse or no population, where no telephone system exists, lines would have to be laid with network termination circuits and radio interfaces at appropriate intervals.

## Claims

1. Communication network for the establishment and operation of individual communication connections, in which the central office is connected by firmly assigned local lines to a network termination circuit to which each subscriber can be connected, characterized in that the network termination circuit is provided with a radio interface and given a local identity.

2. Communication network according to Claim 1, characterized in that the network termination circuit is assigned to a subscriber-specific terminal for no longer than the duration of an individual communication connection.

3. Communication network according to Claim 1, characterized in that every subscriber-specific terminal is provided with a transmitter/receiver which is compatible with the a radio interface.

4. Communication network according to Claim 3, characterized in that every subscriber-specific terminal can be connected to any network termination circuit that happens to be available.

5. Communication network according to Claim 4, characterized in that it is possible within the framework of an individual communication connection to switch a subscriber-specific terminal from one network termination circuit to another.

6. Communication network according to Claim 1, characterized in that in conventional communication networks with subscriber-specific network termination circuits, these network termination circuits can also be provided with an additional radio interface, and that suitable

changeover devices are provided which allow alternative operation in either the "subscriber-specific" mode or in the "only line-specific" mode.

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### Abstract

The invention describes a communication network for the establishment and operation of individual communication connections. The connection between the central office and the individual subscriber is established on the subscriber side, which essentially consists of lines leading to the subscriber and the corresponding network termination. The network termination and the subscribers have a common identity. According to the invention, the network termination circuit is provided with a radio interface. The network termination circuit has only a local identity. The subscriber identity is transferred to the terminal.

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**COMBINED DECLARATION AND POWER OF ATTORNEY**

As a below named inventor, I hereby declare that:

This declaration is of the following type:

- ☐ original
- ☐ design
- ☐ supplemental
- ☒ national stage of PCT
- ☐ divisional
- ☐ continuation
- ☐ continuation-in-part (CIP)

My residence, post office address and citizenship are as stated next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed for and for which a patent is sought on the invention entitled:

**MESSAGE NETWORK**

the specification of which

☐ is attached hereto

☒ was filed on January 31, 2002, as

Application No. 10/030,167

and was amended on \_\_\_\_\_  
(if applicable)

☒ was described and claimed in PCT International application

No. PCT/EP00/05073 filed on 3 June 2000

and as amended under PCT Article 19 on \_\_\_\_\_  
(if any).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any Amendment referred to above.

I acknowledge duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Sec. 1.56.

☐ In compliance with this duty there is attached an information disclosure statement. 37 CFR 1.97.

2003-10-23 10:00:00

I hereby claim foreign priority benefits under Title 35, United States Code, Sec. 119, of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent of inventor's certificate having a filing date before that of the application on which priority is claimed:

☐ no such applications have been filed  
☒ such applications have been filed as follows.

Prior Foreign Application(s)

<u>199 36 164.9</u>	<u>Germany</u>	<u>31/July/1999</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	(D/M/Y filed )	Yes	No
<u>                    </u>	<u>                    </u>	<u>                    </u>	<input type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	(D/M/Y filed )	Yes	No
<u>                    </u>	<u>                    </u>	<u>                    </u>	<input type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	(D/M/Y filed )	Yes	No

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below:

<u>                    </u>	<u>                    </u>	<u>                    </u>
(Appln. Serial No.)	(Filing Date)	(patented, pending, abandoned)

I hereby claim the benefit under Title 35, United States Code, Sec. 120 of any United States application(s) listed below, and insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Sec. 112, I acknowledge the duty to disclose all information known to be material to patentability as defined in Title 37, Code of Federal Regulations, Sec. 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

**POWER OF ATTORNEY:** As a named inventor, I hereby appoint the following attorney(s) and/or agents to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

George M. Cooper, Reg. No. 20,201.  
Felix J. D'Ambrosio, Reg. No. 25,721.  
Eric S. Spector, Reg. No. 22,495.

Douglas R. Hanscom, Reg. No. 26,600  
William A. Blake, Reg. No. 30,548

Send correspondence to  
Felix J. D'Ambrosio  
JONES, TULLAR & COOPER, P.C.  
P.O. Box 2266 Eads Station  
Arlington, VA 22202

Direct telephone calls  
TO: Felix J. D'Ambrosio  
(703) 415-1500

I hereby declare all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

1-00  
Full name of sole inventor Eberhard HERTER

Inventor's signature X Eberhard Hertel

Date X Mar. 22, 2002

Residence Libanonstrasse 33, 70184 Stuttgart, Germany

DEX

Citizenship German

Post Office Address Libanonstr. 33, 70184 Stuttgart

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